

By one or more of the writers before us, warm or even hot applications to the surface are recommended. These applications we have invariably found to do harm; they are disagreeable to the patient, and certainly have no effect in arresting the occurrence of collapse, or in producing reaction when this has occurred. Cool air and cold applications to the surface produce always a comfortable sensation, and are more calculated to do good in the advanced stages of the disease than heat applied in either a dry or moist form.

That we may do full justice to Dr. Cartwright, we give his treatment of cholera, in his own words:—

“My general plan of treatment in cholera may be summed up in a few words. It is the sweating plan, which past experience has found to be so successful in most of the malignant and congestive epidemics of former ages. The powder I recommend (capsicum and calomel,  $\text{āā}$  twenty grs., camphor ten grs., gum Arabic and calcined charcoal,  $\text{āā}$  grs. fifteen), will generally start a sweat in ten minutes, if timely given; and in ten minutes actually begins the cure of the disease, by making a revulsion to the surface. That revulsion to the surface has only to be supported by diluent drinks. No stimulants, astringents, or opiates are necessary, if a healthy sweat can be brought about. They do harm if they interrupt the sweat, by heating the system too much. But until perspiration takes place, stimulants are all important. Bleeding, cupping, or the application of cold water, is as necessary, in some cases, to bring the system down to the sweating point, as hot applications, mustard plasters, and frictions, are in the cold and torpid cases.”

The treatment which approaches the nearest to the one which in our hands has proved the most effectual in arresting the disease, put in practice during the first and second stages of the disease, is that laid down in the essay of Dr. Batchelder. The treatment recommended by Dr. Coventry is likewise a very judicious one, and if early enough resorted to, will, we believe, seldom disappoint the practitioner in its results,

D. F. C.

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XXI.—*The Treatment of Rheumatic Diseases by Lemon Juice; with Illustrative Cases from Hospital Practice.* By G. OWEN REES, M. D., F.R.S., &c. &c. London, Longman & Co., 1849: pp. 38, 8vo.

THE object of this publication is to call the attention of the profession to the beneficial effects produced by the exhibition of lemon juice in rheumatic diseases. Dr. Rees believes that this article is no less, if not more, efficacious than any of the preparations of colchicum, which have for so many years enlisted the confidence of the profession, in acute rheumatic affections, and in this he is sustained by the testimony of several distinguished practitioners, who have employed it at his suggestion. Lemon juice, Dr. Rees says, certainly lowers the pulses of those suffering from acute rheumatism in as marked a degree, and as quickly, as colchicum does, when exhibited in medicinal doses, while the early relief from pain is such as we seldom obtain by the use of the latter remedy. Several cases of rheumatism treated, in Guy's hospital, by lemon juice, he states, recovered with a rapidity almost unprecedented, considering the severity of the symptoms. Other cases, he adds, as might have been expected, though they have gone on satisfactorily to cure, have not shown themselves quite so quickly amenable to the plan of treatment. In such cases, the lemon juice treatment has been adopted with such modifications as the case may have been thought to require. The progress, however, of the disease, as observed even when most obstinate, under the use of this new remedy, will, Mr. R. thinks, be found to bear a very favourable comparison with the history of those cases in which the old plans of treatment have been had recourse to.

The form of rheumatic disease in which the greatest benefit would appear to have been derived from the use of lemon juice, is that of acute rheumatism, and that form of rheumatic affection involving the smaller as well as the larger joints in acute inflammation, and known as rheumatic gout.

In cases of pure gout, in which the inflammation is high, great advantage

has been observed, while in subacute and more chronic forms of the disease the same marked benefit has not been experienced. Neither is it observed, in acute rheumatism, that benefit accrues from continuing this remedy when the inflammatory symptoms have been checked, and debility remains.

In chronic rheumatism, Dr. R. has apparently observed some benefit from the remedy; but lengthened experience alone can determine the question of efficacy in so lingering and capricious a disease.

Dr. Rees gives the details of eight cases of rheumatism treated by this article, which exhibit its effects in a very favourable light, and are certainly calculated to induce a trial of the remedy.

The determination of the quantity of solid matters excreted by the urine during the twenty-four hours is a point of considerable pathological interest, and Dr. R. has been fortunate enough to obtain in two of the cases very exact returns in this respect. By making a calculation founded on the quantity of urine passed during the day, and its specific gravity, he found that in one of these cases the quantity of solid matter discharged increased as the patient improved. In another, however, in which the state of the urine was very carefully noted, this condition did not pertain; but, on the contrary, the solids so excreted diminished in quantity while the patient was becoming rapidly well.

"The amount of urine passed by this girl was remarkably small, and it had an alkaline reaction at the commencement of the disease, which, however, speedily disappeared under the use of the lemon juice.

"As regards the question of cure by the excretion of some materies morbi from the blood, even if we admit this as the mode in which the return to a state of health is brought about, it does not appear reasonable to expect that in all cases we should find the kidneys the excretors of the morbid matter; inasmuch as the skin possesses very different degrees of energy in different persons, and in rheumatic disease its excretory power is called into full action. The skin may thus interfere with the regularity of any law laid down in respect to the state of the urine, as it can excrete not only water and carbonic acid, but also a large amount of solid matters during the day, when in the highly active state observed in rheumatism.

"The use of lemon juice, as a remedial agent, has of late years been almost restricted to its administration as a cure for scurvy. It formerly would seem to have enjoyed some considerable reputation as an antisyphilitic. We learn from *Percival's Works*\* that the juice of lemons has been found also of great service in certain biliary and stomachic derangements, and, as the experience recorded is not without interest in connection with the present subject, I shall here quote the author's words. After relating some experiments made on gall, by the addition of lemon juice and other acids, he proceeds to express an opinion that the beneficial effect is to be traced to its power of 'sweetening putrid acrimony.' The facts recorded are, however, as may be imagined, more valuable than the theory propounded. Our author proceeds: 'A tablespoonful of the juice of lemons, unmixed with anything, is said by an ingenious writer (Whytt on Nervous Diseases), to have repeatedly proved a certain cure for a palpitation of the heart, after many of the medicines called anti-hysteria had been tried in vain. This conjecture is confirmed by a similar case which Dr. Bisset hath related, of a middle-aged gentleman who had a palpitation of the heart, accompanied with some symptoms of the jaundice, and who was completely cured by drinking every evening weak rum, acidulated with the juice of Seville oranges.'

"Cases are also quoted by Percival, from which it would appear that calculous diseases have been greatly benefitted by the use of lemon juice; so much so, indeed, as to have led to a belief that it possessed lithontriptic properties. Sydenham also recommends lemon juice and manna as a remedy for gravel, and speaks of its great efficacy in his own case. The account of his own sufferings and relief may be found in his Works,† in the chapter 'de mictu sanguineo a calculo renibus impacto.' He there relates how his nephritic affection formed

\* Vol. iii. p. 105. I am indebted to my friend Dr. Theophilus Thompson for this and other references.

† Page 522-3; edition published by the Sydenham Society.

the sequel to an attack of gout. The probability that the beneficial effects quoted by the authors cited were produced by lemon juice, is, to a certain extent, increased by the experience we have had in the treatment of rheumatic diseases: stomach derangement, disturbance of the function of the heart, and calculous nephritis, all bearing a relation to the rheumatic and gouty diatheses.

"As regards the theory of the action of lemon juice in the cure of rheumatic and gouty disease, I have but little to say. I recently published the view which I was inclined to take on the subject, but am by no means anxious to place it before the profession as anything but an extremely doubtful matter to my own mind; it being rather to the facts contained in the above cases that I earnestly beg attention.

"Citric acid, the chief ingredient in the juice of the lemon, if considered in the anhydrous state, is composed as follows:—

Carbon	-	-	-	-	-	4 atoms
Hydrogen	-	-	-	-	-	2 "
Oxygen	-	-	-	-	-	4 "

"This shows a great excess of oxygen over and above the quantity required to saturate the hydrogen present, and under such conditions it may be considered probable that, when introduced into the stomach, this excess of oxygen may there be made use of to modify the results of the digestive process. Knowing, then, as we do, that in the class of gouty and rheumatic affections there is a tendency to the introduction of lithic acid into the circulation, in what manner may we suppose this excess of oxygen to assist us? Let us first consider the constitution of lithic acid, and we shall observe the fact, so well known to animal chemists, that its elements may easily be converted into those of urea and carbonic acid, by the addition of water and oxygen. This will be at once apparent from the following diagram:—

1 atom of lithic acid	$C_{10} N_4 H_4 O_8$
4 atoms of water	$H_4 O_4$
6 atoms of oxygen	$O_6$
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	$C_{10} N_4 H_8 O_{16}$
equal to	
2 atoms of urea	$C_4 N_4 H_8 O_4$
6 atoms of carbonic acid	$C_6 O_{12}$
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	$C_{10} N_4 H_8 O_{16}$

"It was reflecting on the exigencies of the case, more especially in reference to the necessity for a supply of oxygen, that the exhibition of lemon juice in gout and rheumatism suggested itself to my mind, and I moreover considered, that probably the small proportion of alkaline citrate present, which, by decomposition during digestion, yields an alkaline carbonate to the blood, might assist in the cure. Whether there be truth or not in this theory matters little, in comparison with the discovery of a remedy, which, I believe, assists in obtaining earlier relief than has heretofore been the case, in a most distressing malady.

"The most marked physiological effect produced by the exhibition of lemon juice is, perhaps, the great diminution in the action of the heart and the lowering of the pulse. The relief from pain is, however, so early obtained, and so much more complete than by other remedies similarly affecting the pulse, that I am disinclined to attribute it entirely to that quality. I was anxious to ascertain whether we should not observe some effect on the pulse by exhibiting the juice to a healthy person, and one of our clinical clerks, Mr. Sanders, immediately volunteered for the experiment. This gentleman took one ounce of the juice three times a day for three days, and carefully noted his pulse, which was naturally full, and 75 in the minute. After five doses, the pulse became much weaker and more compressible, and numbered 70 in the minute—conditions accompanied by a feeling of general depression. On the third day, the pulse became as low as 66, and was very small and compressible. The urine was always acid, and also natural in quantity till the third day, when it in-

creased somewhat; the specific gravity was then 1017, and there was a deficiency of lithic acid.

"It is important to state that the urine has never been rendered alkaline by the administration of lemon juice; in one case, indeed, in which it was alkaline before treatment, it became acid after the juice had been administered. These facts show that its beneficial effects are not attributable to the alkaline citrate contained in it. Had an alkaline condition been produced, then we might have concluded that its action was analogous to that obtained by the exhibition of salts of vegetable acids, such as the acetate and tartrate of potash.

"In order, however, more satisfactorily to determine this question, I evaporated 20 fluidounces of the lemon juice of the apothecary's shop at Guy's Hospital, and incinerated the dried extract. On examining the ash, it proved to contain only 22 grains\* of alkaline salts, so that it is not possible to attribute the effects of the lemon juice to the alkaline citrate it contains; the remedy evidently possessing a totally different therapeutical action. In so far, however, as its quantity may be supposed to go, we may regard the alkaline citrate as an advantage. Considering it as a remedy, however, its small proportion is such as almost to reduce the consideration to a par with the notions entertained by the devotees to a whimsical and vulgar absurdity."

Dr. Rees gives the lemon juice in the dose of half an ounce three times a day in camphor mixture.

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ART. XXII.—*Report on the Practical Operation of the Law relating to the Importation of Adulterated and Spurious Drugs, Medicines, &c.* By M. J. BAILEY, M. D., Special Examiner of that Class of Merchandise in the United States Customs, at the Port of New York. Read before the New York Academy of Medicine, June 6th, 1849. Published by order of the Academy. New York, 1849: 8vo. pp. 20.

It will be remembered by our readers, that, at the meeting of the American Medical Association in Baltimore, in May, 1848, Dr. Thomas O. Edwards, a member of Congress, from Ohio, and chairman of the special committee of the House of Representatives, to which was referred the subject of the importation of worthless, adulterated, and misnamed drugs, made a very interesting communication to the Association on this subject, and that this body appointed a committee to prepare and report a memorial to Congress on the subject. Through the influence of the Association and of other influential bodies, and especially by the efficient and philanthropic exertions of Dr. Edwards, a law was enacted to prevent the importation of worthless, adulterated, and misnamed drugs. Dr. Bailey says that, "On the passage of the bill prohibiting the importation of spurious and adulterated drugs, medicines, medicinal preparations, &c., I was requested by the Hon. Thomas O. Edwards, the able and philanthropic chairman of the special committee of the House, to which that important subject had been referred, to note the practical working of the law at the port of New York, (where three-fourths or more of the importations of that class of merchandise are presented for entry,) and furnish, in such manner as might be most agreeable to myself, a report of the same, prior to the next meeting of the National Medical Association, in order that the information therein contained might have the greatest possible circulation throughout the country."

Dr. Bailey, in compliance with this request, improved the leisure moments allowed him apart from his official duties in preparing the communication under notice.

The law took effect at the port of New York, on the 12th of July, 1848, and the following is a list of the more prominent articles of drugs and medicines,

\* This ash contained about 2.5 grains of chloride, and also some traces of phosphate, so we may fairly conclude that an ounce of the juice contains less than a grain of alkaline citrate.